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PRE-APPEAL BRIEF REQUEST FOR REVIEW		Docket Number (Optional) 1560-0401P	
		Application Number 10/694,884-Conf. #4111	Filed October 29, 2003
		First Named Inventor Koji-KANDA	
		Art Unit 2837	Examiner R. D. McCloud

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.

This request is being filed with a notice of appeal.

The review is requested for the reason(s) stated on the attached sheet(s).

Note: No more than five (5) pages may be provided.

I am the

- applicant /inventor.  
 assignee of record of the entire interest.  
 See 37 CFR 3.71. Statement under 37 CFR 3.73(b)  
 is enclosed. (Form PTO/SB/96)

- attorney or agent of record.

Registration number \_\_\_\_\_

- attorney or agent acting under 37 CFR 1.34.

Registration number if acting under 37 CFR 1.34. 29,680

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May 11, 2006

Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required.  
 Submit multiple forms if more than one signature is required, see below\*:

\*Total of 1 forms are submitted.



Docket No.: 1560-0401P  
(PATENT)

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Patent Application of:  
Koji KANDA

Application No.: 10/694,884

Confirmation No.: 4111

Filed: October 29, 2003

Art Unit: 2837

For: VEHICLE STEERING APPARATUS

Examiner: R. D. McCloud

**STATEMENT IN SUPPORT OF REQUEST FOR PRE-APPEAL BRIEF REVIEW**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

Claims 1-21 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Discenzo in view of Kurishige. A proper motivation for combining these references has not been provided and therefore a *prima facie* case of obviousness has not been presented. Moreover, even if the references could properly be combined, the result would not be the invention required by the pending claims. For these reasons, and as explained in more detail below, reconsideration and allowance of claims 1-21 is respectfully requested.

**A PROPER MOTIVATION FOR COMBINING THE REFERENCES HAS NOT BEEN PROVIDED**

The Office Action indicates that it would have been obvious to modify Discenzo in view of Kurishige to make the Discenzo apparatus “sense current.” The reason for making Discenzo’s device sense current instead of using the output of a torque sensor is “to provide an assist torque to the motor and reduce discomfort to the driver.”

First, Kurishige is a conventional power assist system in which a steering wheel is mechanically coupled to a steering mechanism and in which a steering assist motor makes the

steering wheel easier to turn. Discenzo is a steer-by-wire system and operates differently than Kurishige. There is no direct mechanical connection between Discenzo's steering wheel and the steering mechanism and therefore no reason to provide "steering assist" as is done in Kurishige. Therefore, it is respectfully submitted that one skilled in the art would not be motivated to measure current in Discenzo in order to "provide an assist torque" because Discenzo operates differently than Kurishige and does not require an assist torque.

The Office Action also indicates that the proposed combination would "reduce discomfort to the driver." The word "discomfort" does not appear in Discenzo or Kurishige, and therefore it is not clear from where this motivation is derived. Discenzo does note at column 3, lines 15-17, that the jolt from a driver hitting a pothole can be removed from the forces transmitted to a steering wheel. However, the fact that Discenzo operates in this manner does not suggest that any further modification based on Kurishige is needed to "reduce discomfort to a driver."

For these reasons, it is submitted that a proper motivation for combining Discenzo and Kurishige has not been provided and that a *prima facie* case of obviousness has not been presented. The rejections of all claims are based on a combination of Discenzo and Kurishige. It is therefore submitted that the rejections of all claims are improper and that claims 1-21 are allowable over these references.

EVEN IF THE REFERENCES COULD BE COMBINED, THE RESULT WOULD NOT BE THE INVENTION REQUIRED BY THE PENDING CLAIMS

Claim 1 requires a vehicle steering apparatus that includes a steering motor for supplying a steering mechanism with steering force corresponding to a steering amount applied to a steering member. The apparatus includes a reaction force motor, a current sensor for detecting a motor current of the steering motor and a controller. The controller extracts a component with a predetermined frequency range out of the motor current detected by the current sensor and drives the reaction force motor so as to supply the steering member with steering reaction force corresponding to the extracted component and steering reaction force corresponding to the steering amount.

Discenzo discloses a steer-by-wire system that includes a torque sensor for detecting

torque at a gear box. The detected torque is used by a road feel computer to control a steering wheel servo motor 38 to apply forces to the steering wheel to simulate the feel of a steering wheel connected directly to a steering mechanism. The Office Action acknowledges that Discenzo does not teach a controller extracting a component out of motor current as claimed. However, the Office Action asserts that it would have been obvious to sense a motor current in Discenzo and to extract a component out of the motor current of Discenzo instead of using a torque sensor as taught by Discenzo. The reason for modifying Discenzo in this manner is that there is some relationship between current and torque in a motor.

Kurishige is a power assist device for a power steering system that uses a current control feedback loop to keep the current supplied to a motor at a commanded level. Kurishige is not a steer-by-wire system and is unrelated to the concept of providing road feel to a user. Kurishige in no manner suggests that Discenzo's torque sensor can be removed or that anything other than the output of torque sensor 36 can be used in Discenzo to control servo motor 38. Kurishige does not suggest that a controller should extract current components within a predetermined frequency range out of motor current or that a reaction force motor should be driven based on these extracted current components. For these reasons as well, it is submitted that claim 1 patentably distinguishes over the references of record.

Claims 2-10 depend from claim 1 and are submitted to be allowable for the same reasons as claim 1.

Claim 11 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Discenzo in view of Kurishige. Claim 11 is submitted to distinguish over the references of record for the same reasons provided above in connection with claim 1. Claims 12-20 depend from claim 11 and are submitted to be allowable for the same reasons as claim 11.

Claim 21 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Discenzo in view of Kurishige. Claim 21 is submitted to distinguish over the references of record for the same reasons provided above in connection with claim 1.

CONCLUSION

The withdrawal of the rejections of claims 1-21 based on Discenzo and Kurishige and the allowance of claims 1-21 is earnestly solicited in view of the foregoing remarks.

Dated: May 11, 2006

Respectfully submitted,

By \_\_\_\_\_  
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